

**What Is Claimed Is:**

1. A method for placing branch locations comprising the steps of:
  - (a) identifying at least one service provider branch location;
  - (b) identifying at least one service receiver;
  - 5 (c) identifying a measure of service receiver value;
  - (d) calculating the value of each of said service receivers based on said measure of service receiver value;
  - (e) determining which of said service provider branch locations is the closest service provider branch location for each of said service receivers;
  - 10 (f) determining a probability that each of said service receivers will utilize said closest service provider branch location.
2. The method of claim 1 wherein said closest service provider branch location is determined by travel time between said service receiver and said service provider branch location.
- 15 3. The method of claim 1 wherein said step of identifying a closest service provider branch location from said service provider branch locations for each of said service receivers includes the steps of:
  - determining a travel time between each of said service receivers and one or more of said service provider branch locations; and
  - 20 for each of said service receivers, defining the service provider branch location with the shortest travel time as the closest service provider branch location for said service receiver.

4. The method of claim 3 including the further step of determining a value for each of said service provider branch locations.

5. The method of claim 4 wherein said step of determining a value for each of said service provider branch locations includes said step of summing for each service receiver for which said service provider branch location is said closest service provider branch location the products of (i) said value of said closest service receiver and (ii) said probability that said closest service receiver will utilize said service provider branch location.

6. The method of claim 5 including the further step of determining the value of the service provider branch network.

10 7. The method of claim 6 wherein said step of determining the value of the service provider branch network includes the step of determining network reach.

8. The method of claim 6 wherein said step of determining the value of the service provider branch network includes the step of determining total network travel time.

15 9. A method for placing branch locations comprising the steps of:

- (a) identifying at least one service provider branch location;
- (b) identifying at least one service receiver;
- (c) identifying a measure of service receiver value;
- (d) calculating the value of each of said service receivers based on said measure of service receiver value;
- 20 (e) determining a probability that each of said service receives will utilize each of said service provider branch locations.

10. The method of claim 9 including the further steps of:

(a) defining a probability threshold;

(b) determining a value for each of said service provider branch locations by assigning a portion of said value of each service receiver to each service provider branch location having a probability for said service receiver above said probability threshold.

5           11. The method of claim 10 wherein said step of determining a value for each of said service provider branch locations includes the step of summing the products of (i) said portion of said value of each of said service receivers assigned to said service provider branch location and (ii) said probability that said service receiver will use said service provider branch location.

10           12. A method for optimizing a service provider network comprising the steps of:

(a) selecting a network change parameter;

(b) selecting a fitness parameter to be optimized;

(c) selecting a calculation stop criterion;

(d) applying a genetic algorithm to a population of solutions to create a new population of solutions;

15           (e) assigning a value to each of said solutions of said new population to determine relative values of said solutions; and

(f) repeating said steps (d) and (e) until said stop criterion is met.

13. The method of claim 12 wherein said step of assigning a value to each of said solutions comprises the steps of:

20           (a) identifying at least one service provider branch location;

(b) identifying at least one service receiver;

(c) identifying a measure of service receiver value;

(d) calculating the value of each of said service receivers based on said measure of service receiver value;

(e) determining which of said service provider branch locations is the closest service provider branch location for each of said service receivers based on travel time between  
5 said service receiver and said service provider;

(f) determining a probability that each of said service receives will utilize said closest service provider branch location;

(g) determining a value for each of said service provider branch locations; and

(h) determining the value of said solution based on said values of each of said  
10 service provider branch locations contained therein.

14. The method of claim 13 wherein said step of applying a genetic algorithm to create a population of solutions includes the steps of:

(a) discarding a number of solutions determined to be least valuable;

(b) creating new, cross-over solutions from said solutions which have not  
15 been discarded; and

(c) mutating a number of service provider locations within said new, cross-over solutions.

15. The method of claim 14 wherein said step of determining a value for each of said service provider branch locations includes the steps of:

20 (a) defining for each of said service receivers a closest service provider branch location based on travel time between said service receiver and said service provider branch location; and

(b) for each of said service provider branch locations, summing the products of (i) said value of each of said service receivers for whom said service provider branch location is said closest service provider branch location and (ii) said probability that said service receiver will utilize said service provider branch location.

5 16. The method of claim 15 wherein said fitness parameter is maximized.

17. The method of claim 15 wherein said fitness parameter is minimized.

18. The method of claim 15 wherein said stop criterion is a number of iterations of said genetic algorithm.

19. The method of claim 15 wherein said stop criterion is a number of iterations of  
10 said genetic algorithm wherein said fitness parameter fails to be further optimized.

20. The method of claim 14 wherein said step of determining a value for each of said service provider branch locations includes the steps of:

(a) calculating the value of each of said service receivers based on a measure of service receiver value;

15 (b) determining a probability that each of said service receives will utilize each of said service provider branch locations;

(c) defining a probability threshold;

(d) assigning each service receiver proportionally to each service provider branch location having a probability for said service receiver above said probability threshold;

20 and

(e) determining a value for each of said service provider branch locations by summing the products of (i) said value of each of said service receivers assigned to said service

provider branch location and (ii) said probability that said service receiver will use said service provider branch location.

21. The method of claim 20 wherein said fitness parameter is maximized.
22. The method of claim 20 wherein said fitness parameter is minimized.
- 5 23. The method of claim 20 wherein said stop criterion is a number of iterations of said genetic algorithm.
24. The method of claim 20 wherein said stop criterion is a number of iterations of said genetic algorithm without further optimization of said fitness parameter.